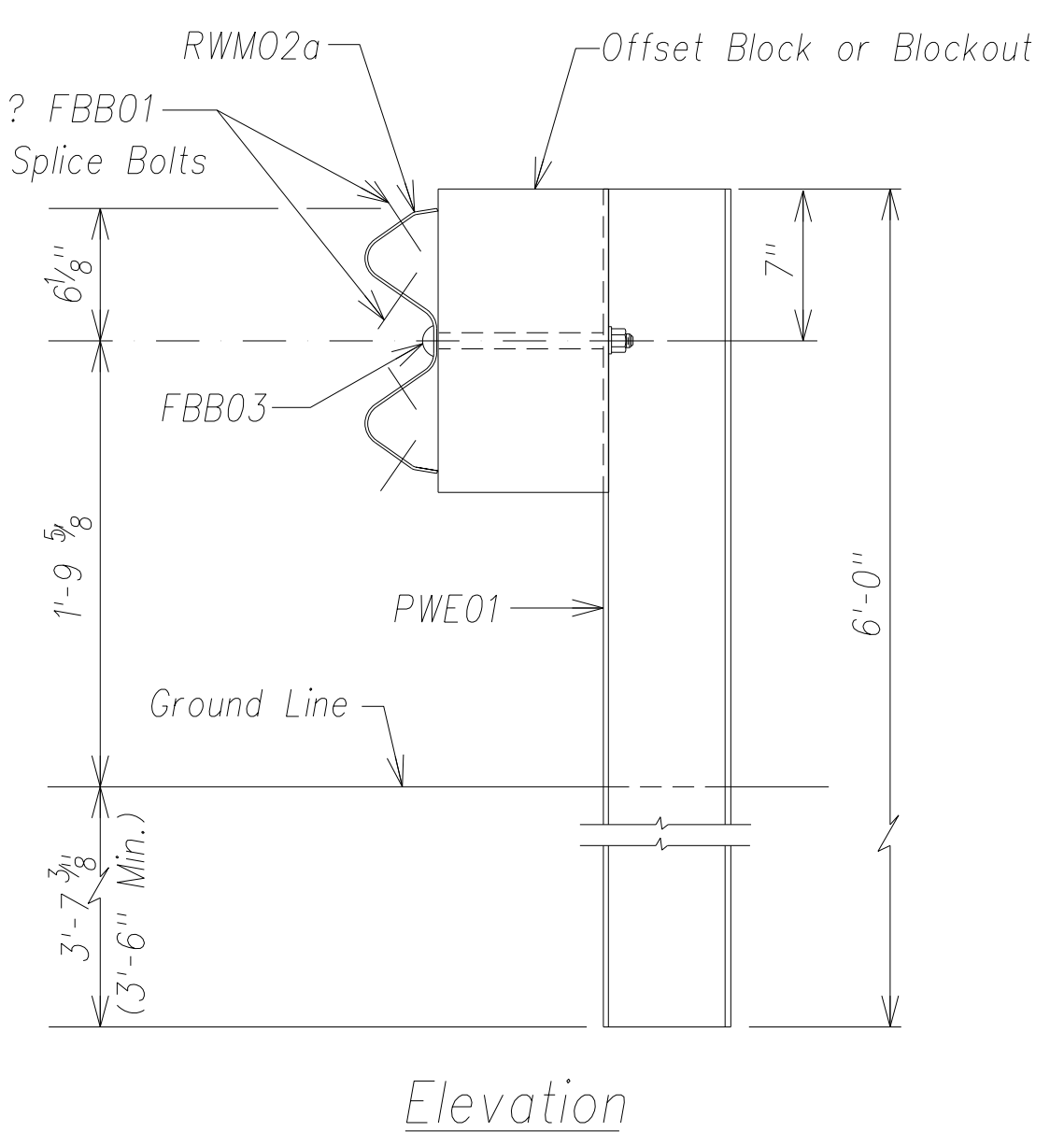
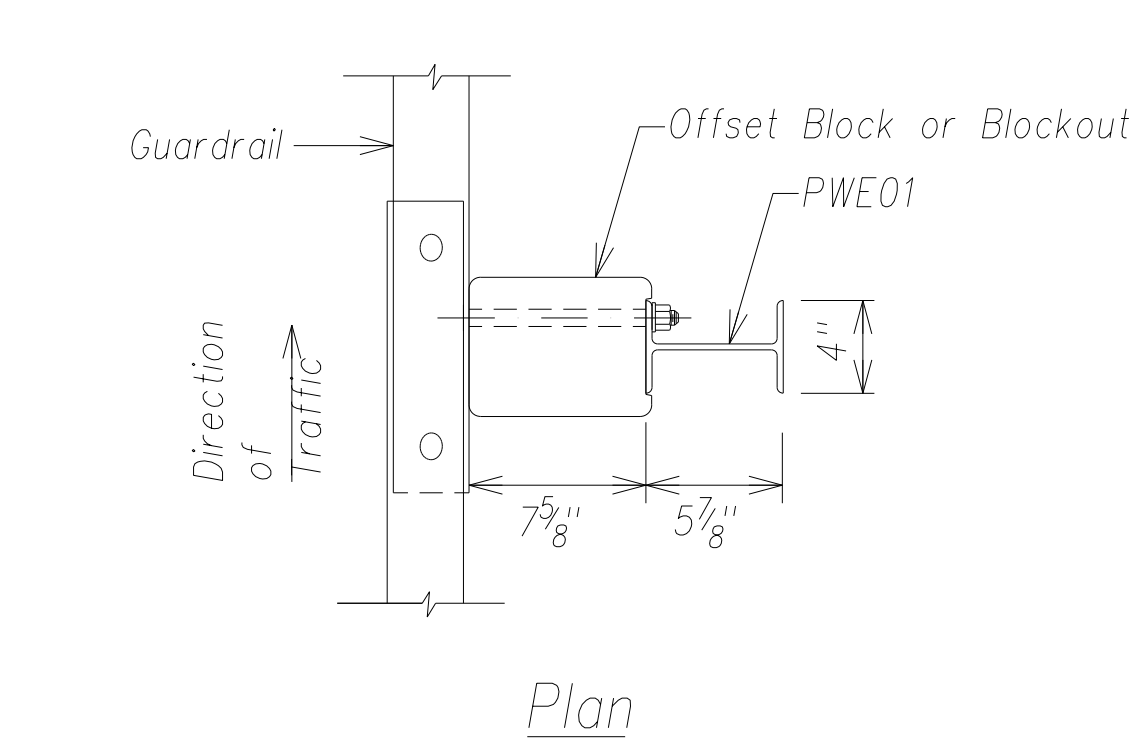
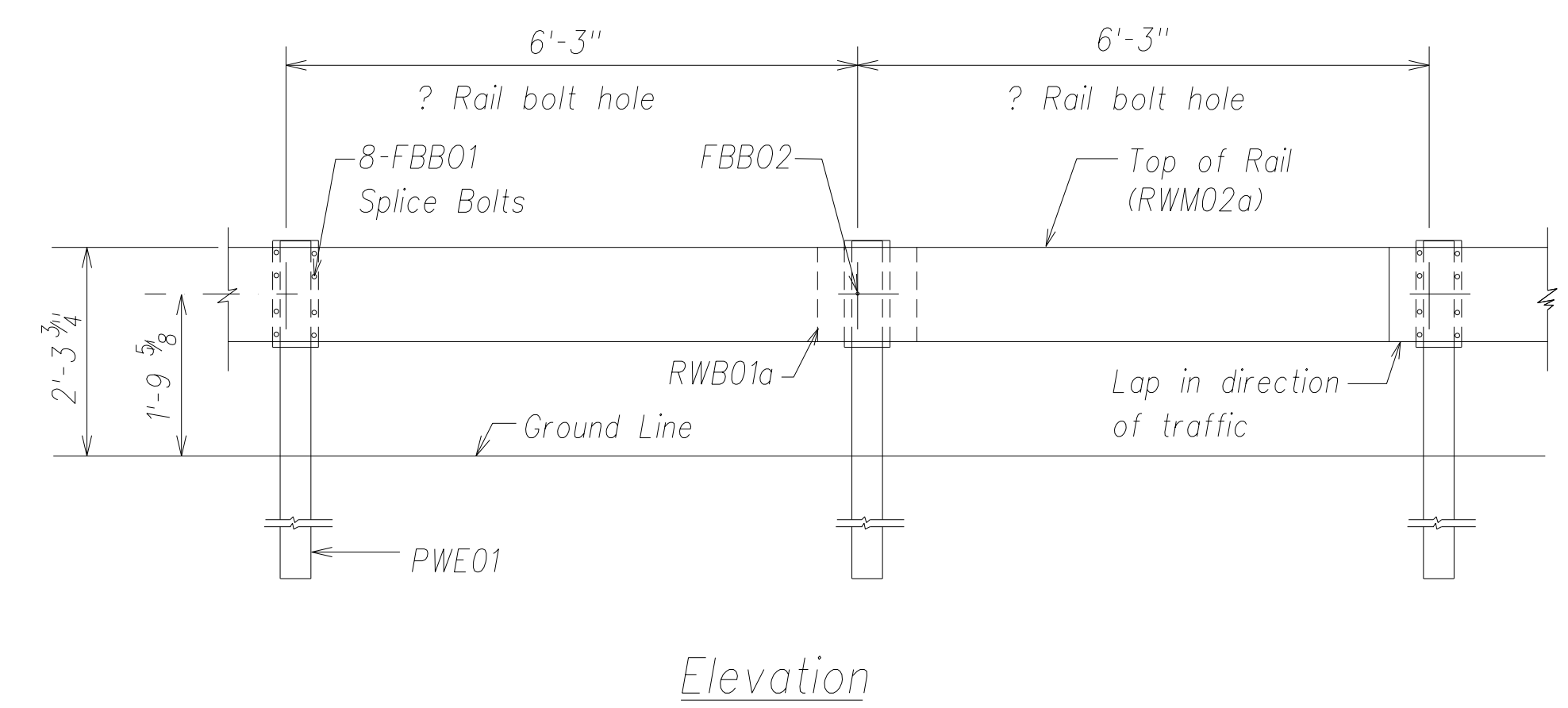


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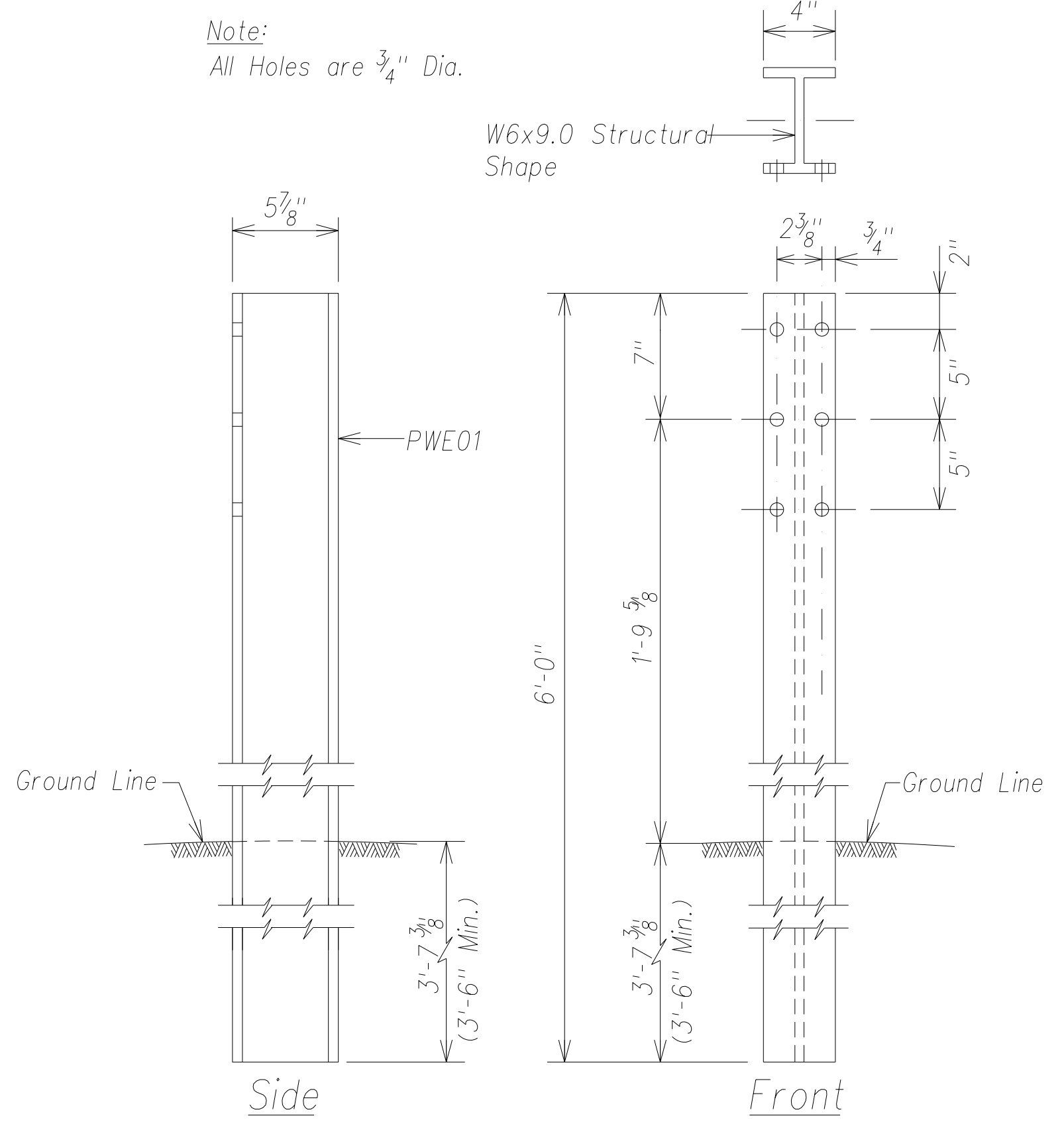
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
NOTE BOOK	QUANTITIES BY	
	CHECKED BY	
No.		



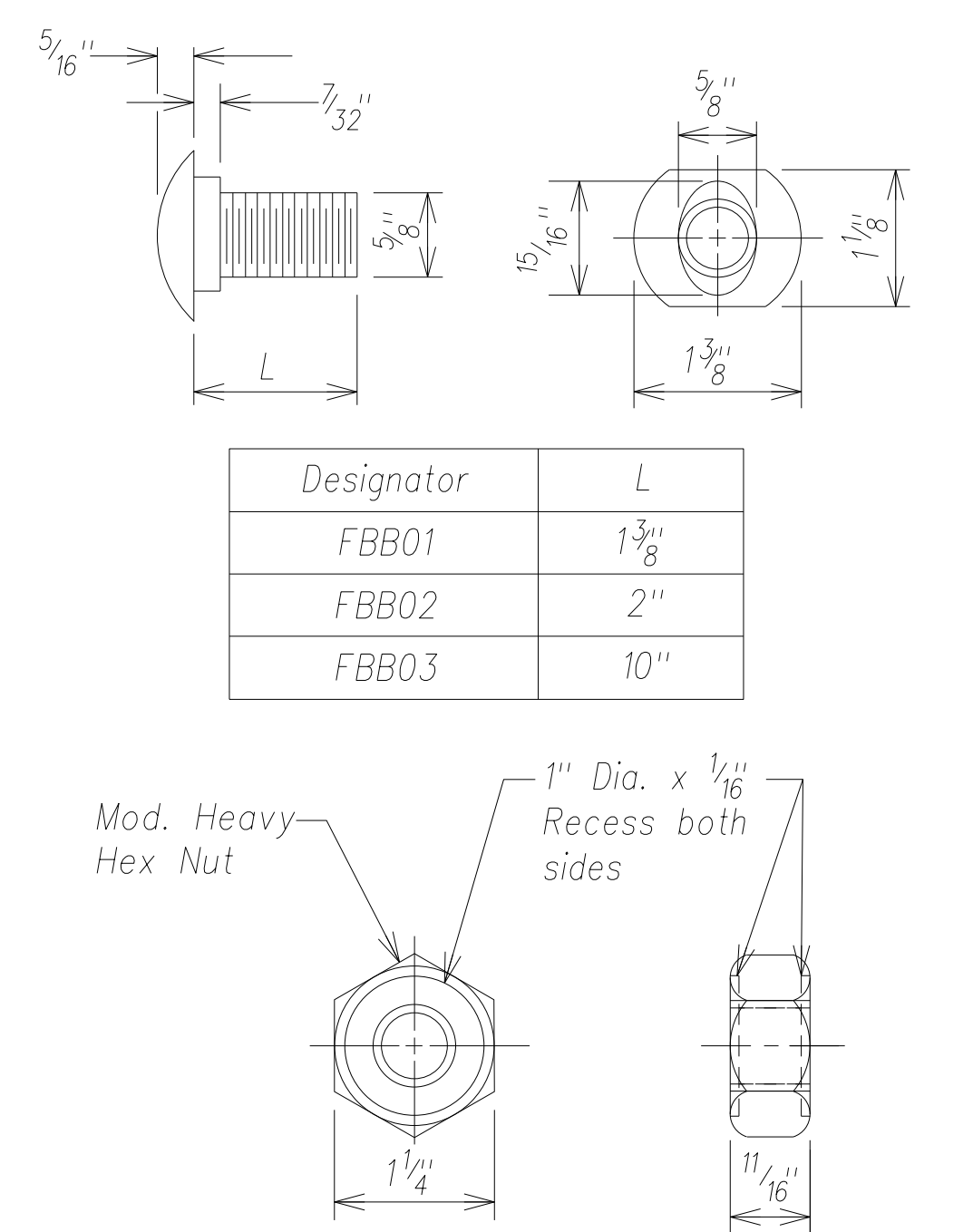
Strong Post W-Beam Guardrail (SGR04a)
Not to scale



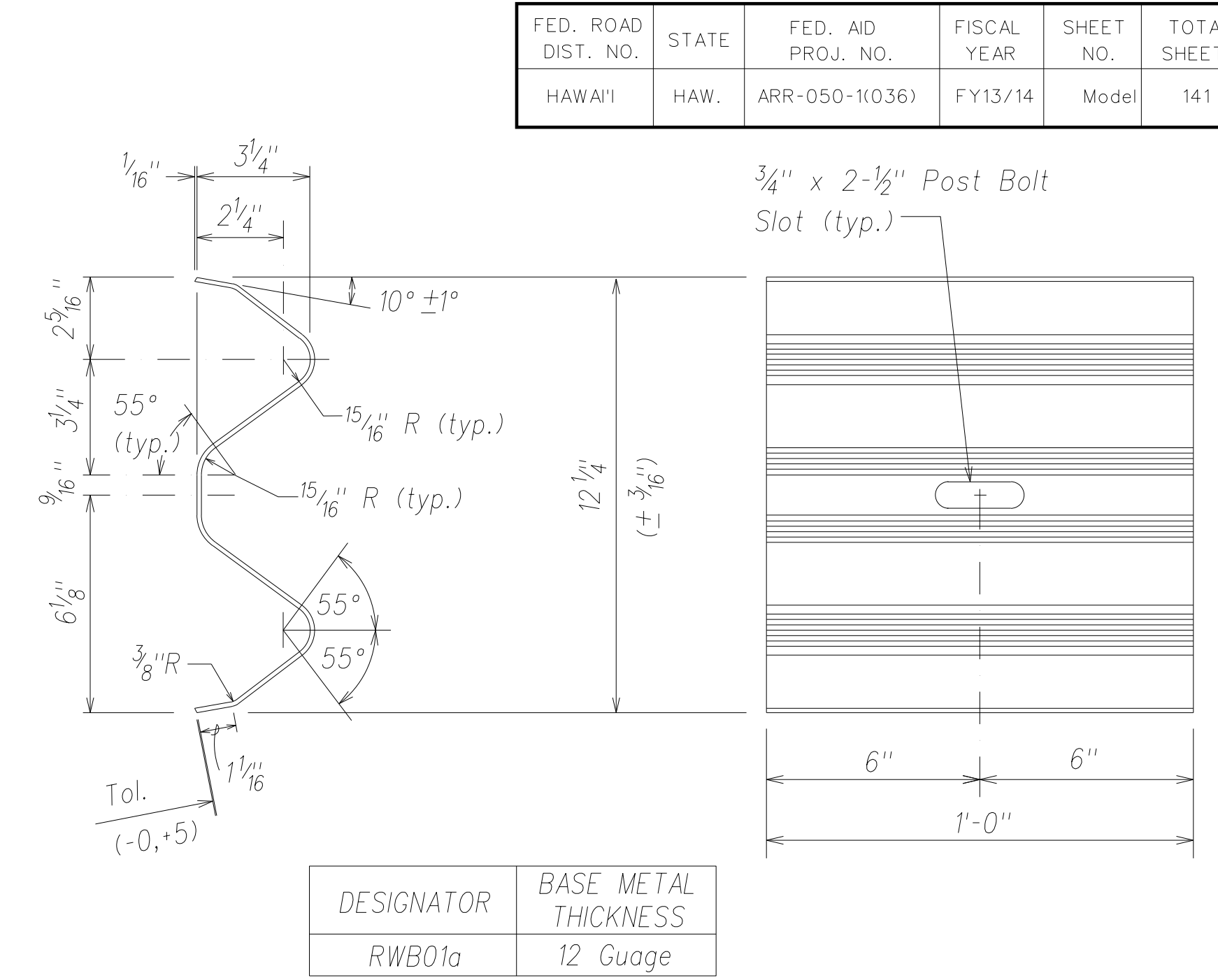
Strong Post W-Beam Guardrail With
Recycled Offset Block or Plastic Blockout
Not to scale



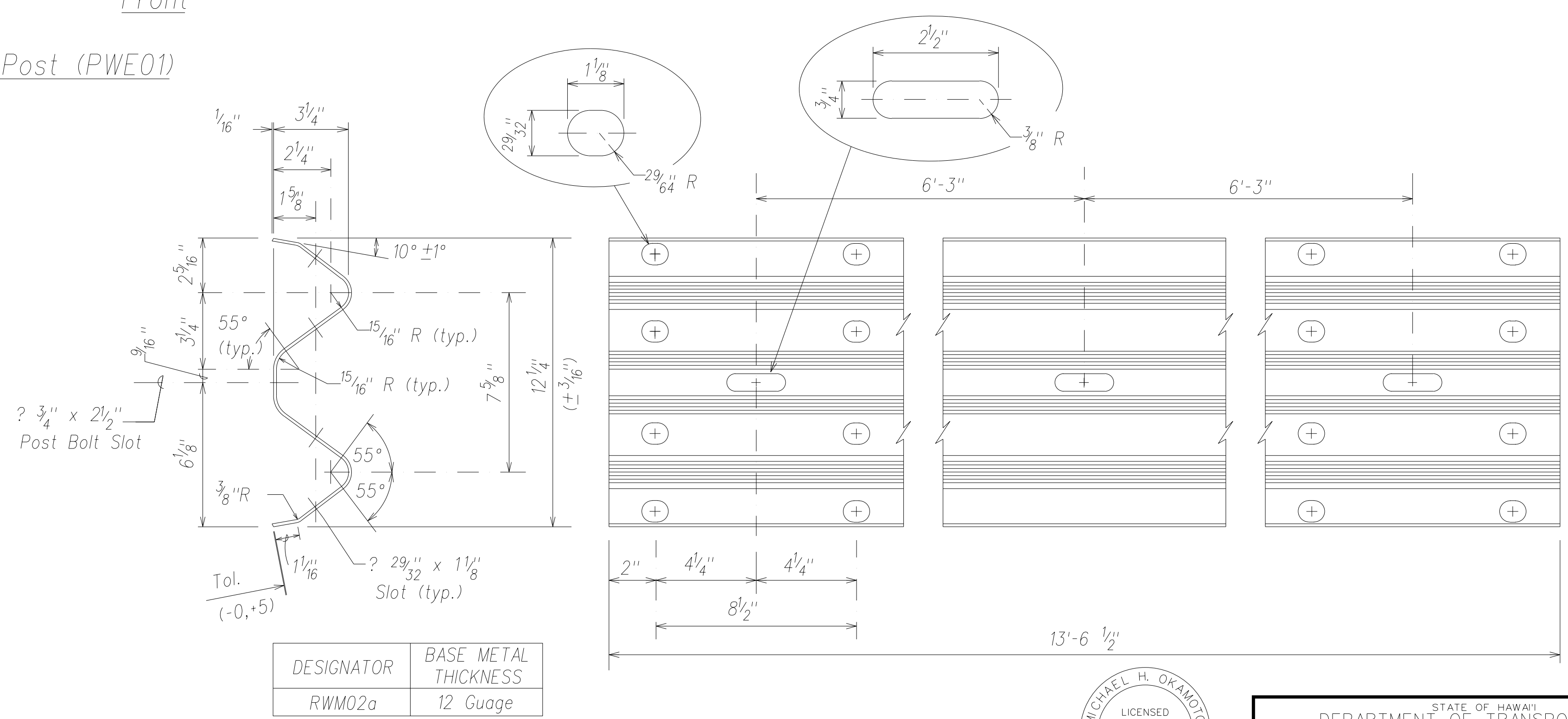
W-Beam Strong Post (PWE01)
Not to scale



Guardrail Bolts and Recessed Nut
Not to scale



W-Beam Back-Up-Plate (RWB01a)
Not to scale



2 Space W-Beam Guardrail (RWM02a)
Not to scale



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Signature _____
April 30, 2016
EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM
GUARDRAIL DETAILS

PHASE 1 - KAUMUALII HIGHWAY
LIHUE MILL BRIDGE TO RICE STREET

PHASE 3 - REHABILITATION OF LIHUE MILL
BRIDGE AND MAKAI WIDENING

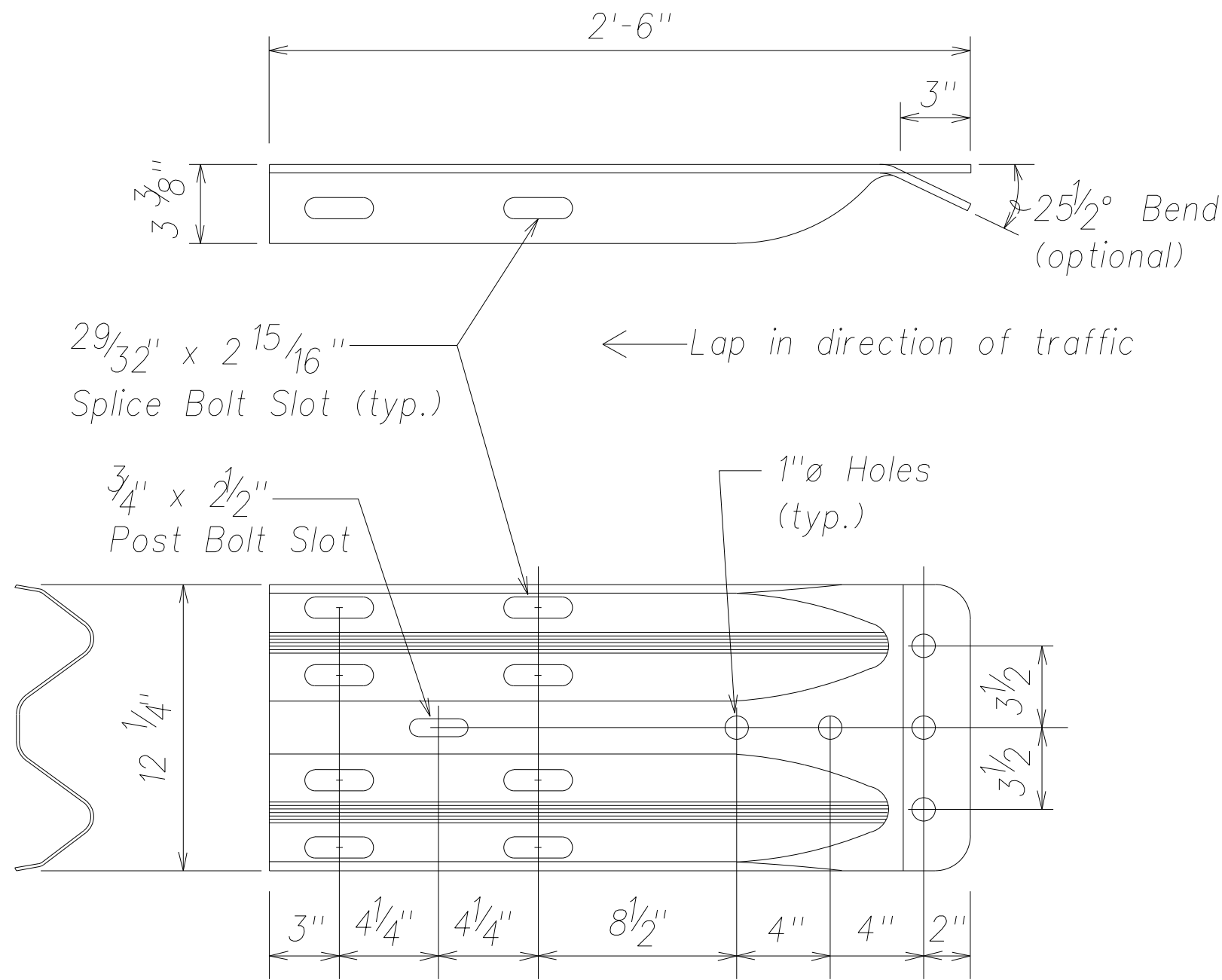
Scale: As Shown Date: May 2, 2014

SHEET No. C-57 OF 82 SHEETS

"AS-BUILT"

Model

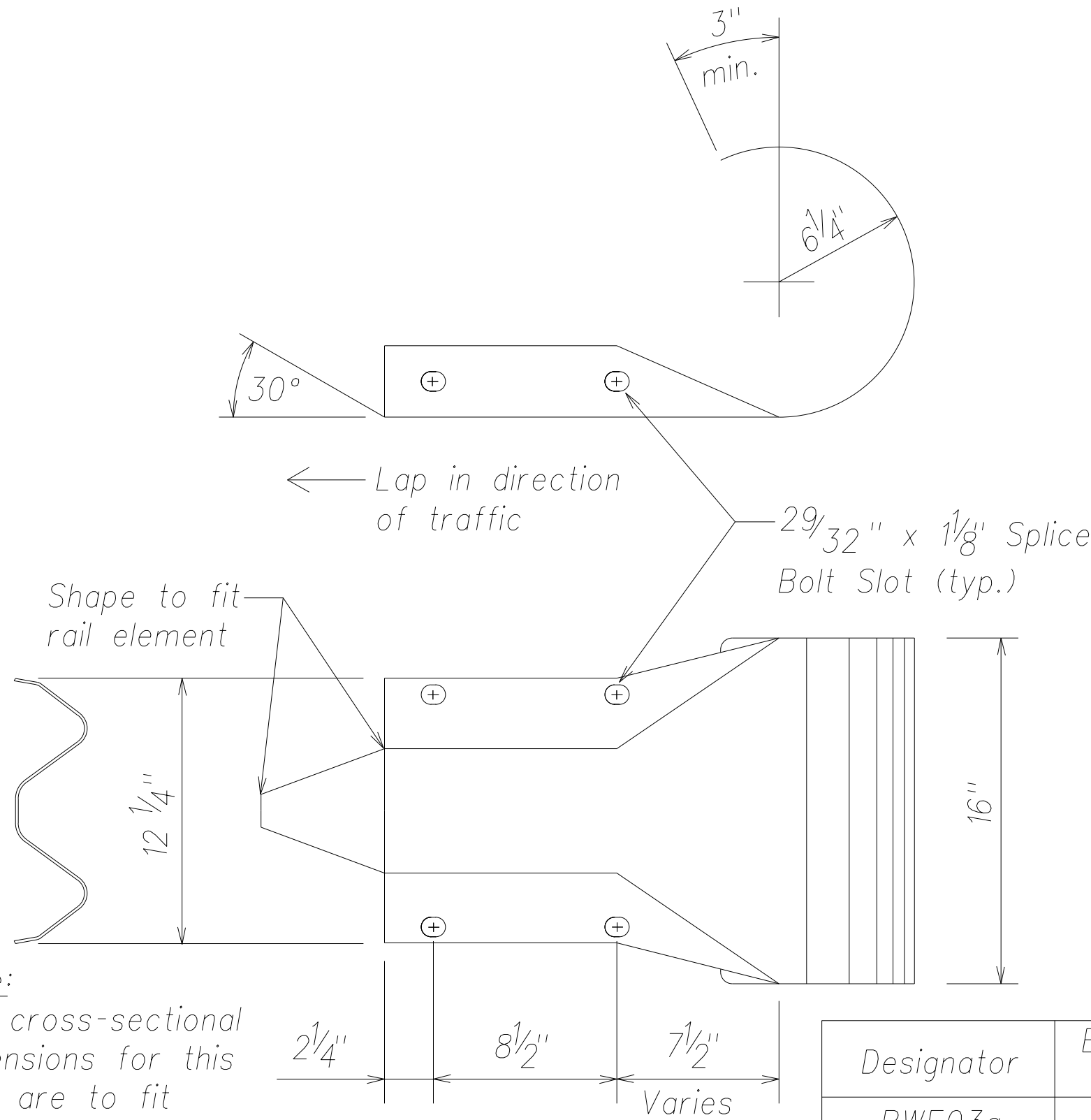
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-050-1(036)	FY13/14	Model	141



Note:
The cross-sectional dimensions for this part are to fit over part RWM02b on the approach end and under part RWM02b on the trailing end.

Designator	Base Metal Thickness
RWE02b	10 Gauge

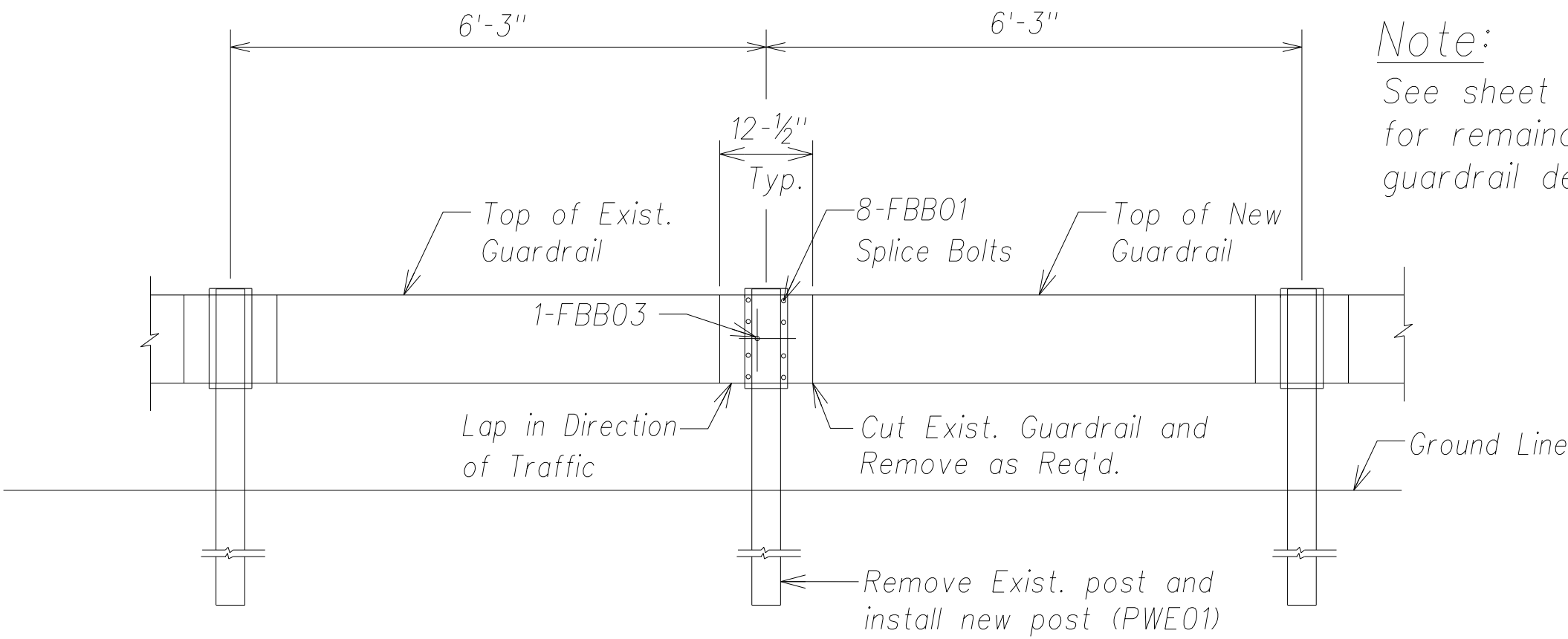
W-Beam Terminal Connector (RWE02b)
Not to Scale



Note:
The cross-sectional dimensions for this part are to fit over part RWM02b

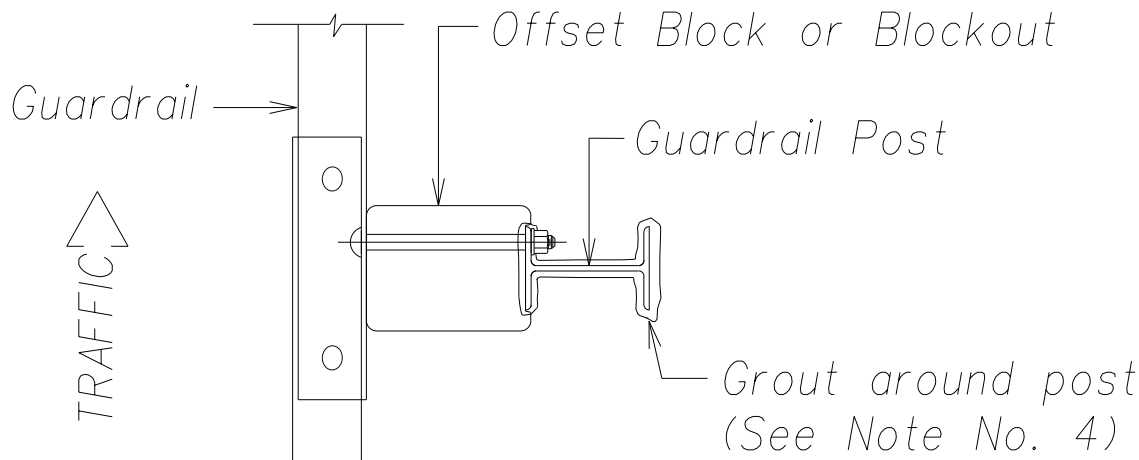
Designator	Base Metal Thickness
RWE03a	12 Gauge

W-Beam End Section (RWE03a)
Not to Scale

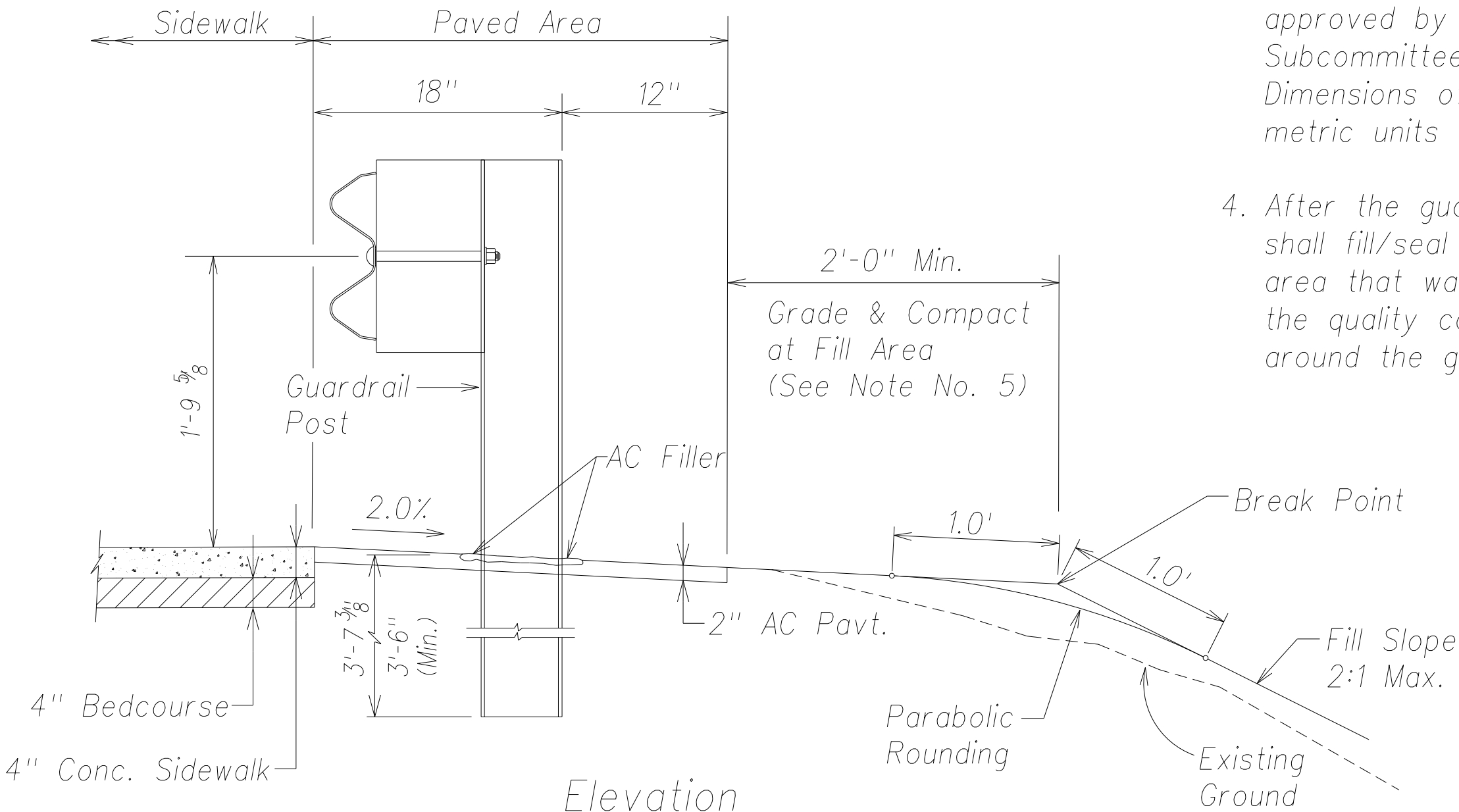


Note:
See sheet C-57 for remainder of guardrail details.

Strong Post W-Beam Guardrail
Connection to Exist. Guardrail
Not to scale



Plan



Elevation

Typical Guardrail Installation
Not to Scale

General Notes:

1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
2. Where conditions require, special post lengths in increments of 6 inches may be specified.
3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02a, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
4. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around the guardrail post and seal all cracks in the paved area that was caused during the guardrail post installation. If required by the quality control engineer, the Contractor shall tamper the paved area around the guardrail post prior to filling/sealing.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM
GUARDRAIL DETAILS

PHASE 1 - KAUMUALII HIGHWAY
LIHUE MILL BRIDGE TO RICE STREET

PHASE 3 - REHABILITATION OF LIHUE MILL
BRIDGE AND MAKAI WIDENING

Scale: As Shown Date: May 2, 2014

SHEET No. C-58 OF 82 SHEETS

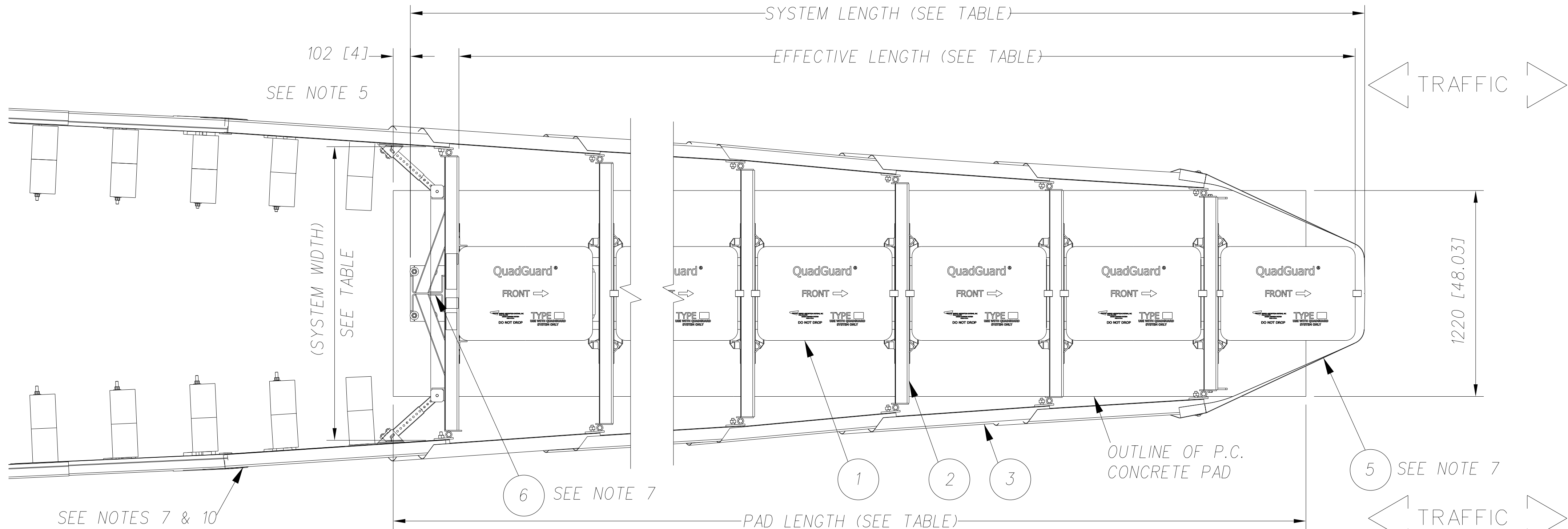
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

FILE: C:\Users\lshah\Desktop\Drawing\ang_sored_April 7, 2016

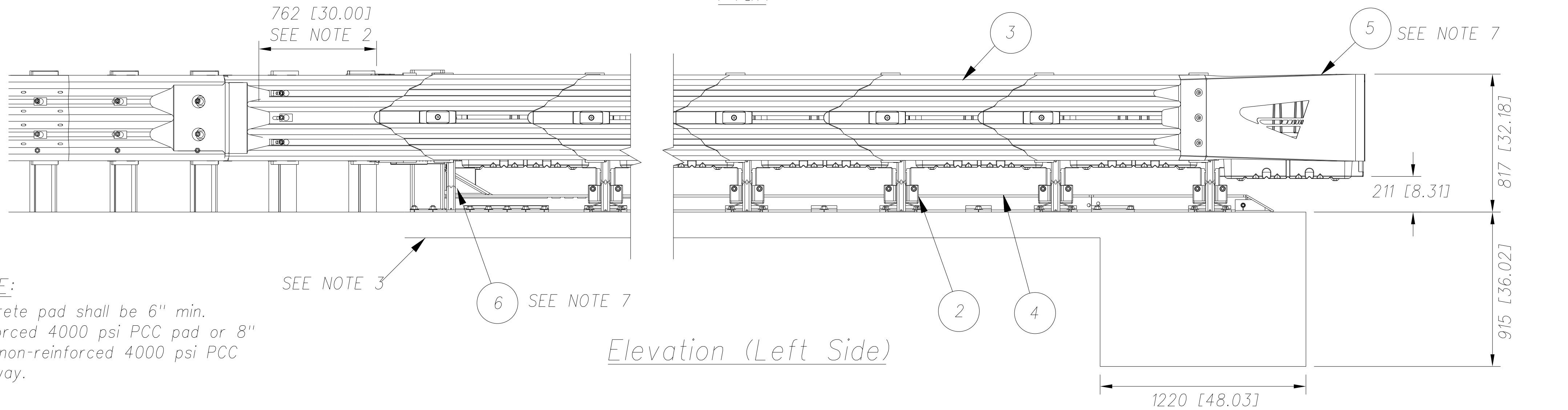
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
NOTE BOOK	CHECKED BY	
	No.	

BAYS	1753 [69"] WIDTH	2286 [90"] WIDTH	SYSTEM LENGTH		EFFECTIVE LENGTH		PAD LENGTH		MAX DESIGN SPEED		NO. OF CARTRIDGES	
xx	MODEL #	MODEL #	m	ft-in	m	ft-in	m	ft-in	Km/h	[MPH]	TYPE I	TYPE II
3	QG27069	QG27090	3.96	[13'-0"]	3.56	[11'-8"]	3.66	[12'-0"]	70	[43]	2	2
4	QG28069	QG28090	4.88	[16'-0"]	4.47	[14'-8"]	4.57	[15'-0"]	80	[50]	3	2
5	QG210069	QG210090	5.79	[19'-0"]	5.38	[17'-8"]	5.49	[18'-0"]	100	[62]	3	3
6	QG210569	QG210590	6.71	[22'-0"]	6.30	[20'-8"]	6.40	[21'-0"]	105	[65]	4	3
7	QG211069	QG211090	7.62	[25'-0"]	7.21	[23'-8"]	7.32	[24'-0"]	110	[68]	4	4
8	QG211569	QG211590	8.53	[28'-0"]	8.13	[26'-8"]	8.23	[27'-0"]	115	[71]	4	5
9	QG212069	QG212090	9.45	[31'-0"]	9.04	[29'-8"]	9.14	[30'-0"]	120	[75]	4	6

NOTE:
Concrete pad shall be 6" min.
reinforced 4000 psi PCC pad or 8"
min. non-reinforced 4000 psi PCC
roadway.



Plan



Elevation (Left Side)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-050-10036	FY13/14	Model A	141

- NOTES:
- IN COMPLIANCE WITH THE AASHTO 2002 ROADSIDE DESIGN GUIDE, MANUFACTURER RECOMMENDS REMOVAL OF ALL CURBS AND ISLANDS TO ENSURE PROPER IMPACT PERFORMANCE.
 - PROVISION SHALL BE MADE FOR REAR FENDER PANELS TO SLIDE REARWARD UPON IMPACT 762 [30.00] MIN.
 - 150 [6.00] MIN. REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE PAD OR 200 [8.00] MIN. NON-REINFORCED 28 MPa [4000 PSI] P.C. CONCRETE ROADWAY, MEASURING AT LEAST 3.66 m [12'-0"] WIDE BY 15.24 m [50'-0"] LONG.
 - SEE THE "QUADGUARD II SYSTEM PRODUCT MANUAL" FOR A DESCRIPTION OF ITS IMPACT PERFORMANCE CHARACTERISTICS AND DESIGN LIMITATIONS BEFORE PLACING A SYSTEM AT A GIVEN SITE. INFORMATION AND COPIES OF ABOVE MANUAL ARE AVAILABLE BY CALLING CUSTOMER SERVICE DEPARTMENT AT (888) 323-6374.
 - WHERE NECESSARY, THE CUSTOMER SHALL SUPPLY AN ADEQUATE TRANSITION FROM THE QUADGUARD II SYSTEM TO THE OBJECT BEING SHIELDED.
 - UNITS OF MEASUREMENT ARE MILLIMETERS [INCHES] UNLESS OTHERWISE NOTED.
 - BACKUP, TRANSITION, MONORAIL AND NOSE ASSEMBLIES ARE NOT INCLUDED IN MODEL NUMBER, ORDER SEPARATELY. TRANSITION ASSEMBLY IS AN ACCESSORY ITEM.
 - THE QUADGUARD II HAS BEEN FULLY TESTED TO NCHRP 350 TL-3.
 - TRANSITION PANEL SHALL BE ANGLED SUCH THAT MAXIMUM GAP FROM FENDER PANEL OVERLAP DOES NOT EXCEED 25 [1.00].

Legend:

- | | |
|----------------|-----------------|
| ① CARTRIDGE | ④ MONORAIL |
| ② DIAPHRAGM | ⑤ NOSE ASSEMBLY |
| ③ FENDER PANEL | ⑥ BACKUP |



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

SIGNATURE
APRIL 30, 2016
EXPIRATION DATE
OF THE LICENSE

01/28/15 New Sheet

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
QUADGUARD II DETAILS
PHASE 1 - KAUMUALII HIGHWAY LIHUE MILL BRIDGE TO RICE STREET
PHASE 3 - REHABILITATION OF LIHUE MILL BRIDGE AND MAKAI WIDENING
Scale: As Shown Date: May 2, 2014
SHEET No.C-58A OF 82 SHEETS

"AS-BUILT"

MODEL A S1